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Abstract Details

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AWARDS:

Abstract

TITLE: EXPLORING DIFFERENT METHODS TO DISPLAY CENTRE-LEVEL DATA IN THE UK CF REGISTRY ANNUAL REPORT

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ABSTRACT BODY:

Abstract Body: Background

Centre-level data for relevant health outcomes are summarised in the UK CF registry annual report as caterpillar plots and funnel plots with the aim of using data to drive quality improvement. These reports are publically available and are used to informally assess centre outcomes. However, a recent publication has questioned the usefulness of the current data display.[1]

Data display in the US CFF Patient Registry annual report is different from the UK. Median %FEV₁ for each adult centre is plotted against median BMI, then the plot is divided into four quadrants based on target %FEV₁ and BMI values. Centres in the top right quadrant (exceeded both target BMI and %FEV₁) can be inferred to have good outcomes instead of just having younger patients. This is because FEV₁ declines with age, but BMI increases with age among adults with CF.

The graphs in both the UK and the US annual reports do not adjust for case-mix, but there is significant between-centre age variation in the UK.[1] We hypothesised that without case-mix adjustment, the US-style plot will more accurately reflect the actual (case-mix adjusted) differences in outcomes between centres.

Aims

To compare UK adult CF centres with funnel plots and US-style plots, with unadjusted and adjusted %FEV₁

Methods

The 2014 UK CF registry data were used for this analysis.

Funnel plots[2] were produced using unadjusted %FEV₁, then using %FEV₁ adjusted for age & pancreatic status.

A plot of median unadjusted %FEV₁ vs median unadjusted BMI was produced, then a plot of age & pancreatic status adjusted %FEV₁ vs age, gender & pancreatic status adjusted BMI.

Results

Of the 28 adults centres in the UK, 3 centres were identified as positive outliers using a funnel plot with unadjusted FEV₁. With adjusted FEV₁, only 1 centre was identified as a positive outlier.

Only 1 centre exceeded the target FEV₁ and BMI using the unadjusted US-style plot. That centre remained in the top right quadrant even after adjustment for relevant case-mix factors.

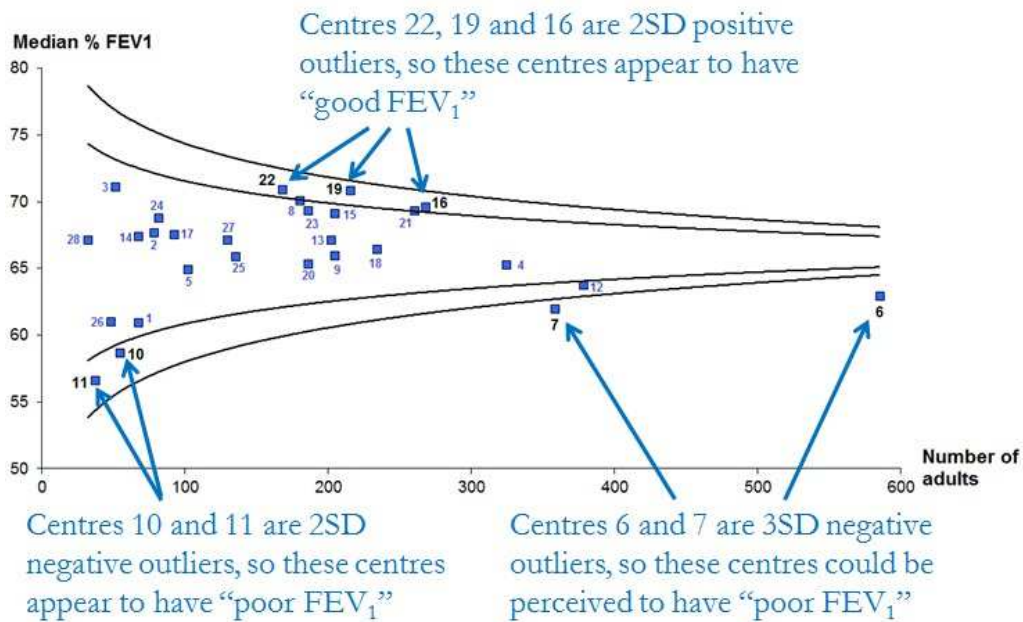
Conclusions

The US-style plot could potentially identify centres with good performance even without case-mix adjustment, unlike funnel plots.

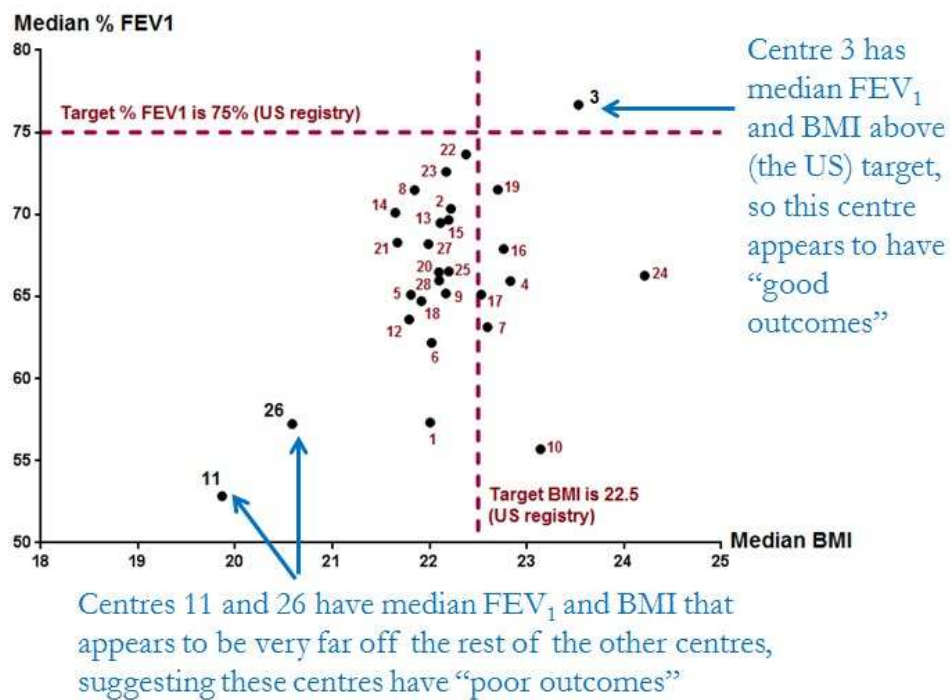
References

1. Nightingale JA, Osmond C. J Cyst Fibros 2017 [Epub ahead of print]
 2. Spiegelhalter DJ. Stat Med 2005;24:1185–202
- (no table selected)

Funnel plot using unadjusted % FEV1



Plot of median % FEV1 vs median BMI (unadjusted)



Caption: